

## **SCOPE OF SERVICES FOR DESIGN SERVICES – QUESTIONS & ANSWERS**

Design for Roadway Rehabilitation on I-96, University Region, Lansing TSC  
JN 84130C

Question 1: The schedule includes dates for Plan Review, Plan Completion, and Omissions/Errors Check. Please verify that these dates apply only to the Maintenance of Traffic portion of the project and that the road design portion ends at base plans.

**Answer 1: That is correct. Road Design is for base plans only while maintaining traffic plans & provisions, and mobility analysis services are needed throughout the entire design phase of the project, through final plans.**

Question 2: Is a scoping document available for this project?

**Answer 2: No, there is not a scoping document available for the project.**

Question 3: Is there traffic analysis information available for this project?

**Answer 3: Yes, there is current traffic data, projected traffic data, and level-of-service analysis results available for review. A copy is attached.**

Question 4: Is hydraulic or hydrologic analysis required for this project?

**Answer 4: Hydraulic and hydrologic analyses are not part of the requested services for this project.**

**DATE:** April 27, 2007

**TO:** Robert Leppala  
University Region/Lansing TSC

**FROM:** Ed Waddell  
Lansing Traffic Analysis Unit

**SUBJECT:** Traffic Analysis Report (TAR) #1829, Project #84130C  
I-96 from College Road to Meridian Road, Ingham County

The following tables contain the requested traffic data for this project. Okemos Road Interchange operations are influenced by the adjacent intersections to the north (Woodlake and Jolly Road.) This project may offer an opportunity to coordinate operational improvements with staff of the Ingham County Road Commission.



Diagrams on the attached pages depict intersection turn movements in both crossroad and roundabout configurations. These are available in paper copy only.

If additional traffic data is required for this project, please let me know.

**Figure 1: I-96 Project Area**

<b>I-96 from I-496 Interchange to Okemos Road</b>				
	<b>Year</b>	<b>2007</b>	<b>2010</b>	<b>2030</b>
<b>Average Daily Traffic (ADT)</b>		58,400	62,900	76,400
<b>Directional ADT</b>		29,200	31,450	38,200
<b>30<sup>th</sup> High Hour (DHV)</b>		5,280	5,520	6,700
<b>Directional DHV (Capacity 4,430)</b>		3,165 EB	3,280 EB	3,990 EB
		3,171 WB	3,310 WB	4,020 WB
<b>% Commercial of ADT</b>		12%		
<b>% Commercial during DHV</b>		8%		

Okemos Road Interchange Ramps				
Year	2007	2010	2030	
Eastbound Off Ramp				
ADT	7,730	7,750	7,860	
DHV	1,100	1,105	1,118	
Eastbound On Loop				
ADT	2,600	2,740	3,630	
DHV	332	350	460	
Eastbound On Ramp				
ADT	350	380	566	
DHV	76	83	125	
Westbound Off Ramp				
ADT	3,235	3,554	5,685	
DHV	434	477	760	
Westbound On Loop				
ADT	940	925	820	
DHV	310	310	310	
Westbound On Ramp				
ADT	7,140	7,190	7,550	
DHV	975	980	1,020	



Figure 2: Okemos Road Interchange, including Woodlake Road and Jolly Road Intersections

<b>I-96 from Okemos Road to Williamston Road</b>			
<b>Year</b>	<b>2007</b>	<b>2010</b>	<b>2030</b>
<b>Average Daily Traffic (ADT)</b>	56,440	59,040	76,390
<b>Directional ADT</b>	28,220	29,520	38,195
<b>30<sup>th</sup> High Hour (DHV)</b>	5,100	5,390	6,670
<b>Directional DHV (Capacity 4,410)</b>	3,060 EB 2,940 WB	3,232 EB 3,130 WB	3,970 EB 4,000 WB
<b>% Commercial of ADT</b>	13%		
<b>% Commercial during DHV</b>	9%		

<b>I-96 Mainline Equivalent Single Axle Loadings (ESALS)</b>		
<b>Pavement Type</b>	<b>Rigid</b>	<b>Flexible</b>
<b>Base Year 2010 Commercial ADT</b>	6414	6414
<b>Commercial Growth Rate</b>	2.5%	2.5%
<b>Growth Type</b>	Average	Average
<b>Directional and Lane Percentages</b>	50% / 90%	50% / 90%
<b>Average ESAL</b>	1.10	0.76
<b>Initial Year ESAL</b>	2.6 million	1.8 million
<b>TOTAL ESALS (2010-2030)</b>	35.4 million	24.5 million

**Okemos Road**  
**Crossroad Diagram:**  
 2007 ADT

**at** **EB I-96 Ramps**

**Leg 1: Okemos Road**  
 North Leg

TOTAL			
	SB		NB
	5673		10485
2740	2933	0	
RIGHT	THRU	LEFT	

**Leg 4: EB I-96 Ramps**  
 West Leg

TOTAL			
	WB		EB
	2740		7906
10646		6848	0
			1058
		LEFT	THRU
			RIGHT

**Leg 2: EB I-96 Ramps**  
 East Leg

TOTAL			
	RIGHT		WB
	0		0
	0		354
	0		354
		THRU	EB

**Leg 3: Okemos Road**  
 South Leg

TOTAL			
	LEFT	THRU	RIGHT
	0	3637	354
3991		3991	
SB	7982	NB	

**Okemos Road**

**at**

**EB I-96 Ramps**

**Roundabout Diagram:**  
 2007 ADT

**Leg 1: Okemos Road**  
 North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

**RT Bypass?**

Bypass Volume 0

TOTAL			
	WB		EB
	2740		7906
10646		2933	7906

**RT Bypass?**

Bypass Traffic 0

**Leg 4: EB I-96 Ramps**  
 West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

**Leg 2: EB I-96 Ramps**  
 East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

**RT Bypass?**  
 Bypass Volume 0

TOTAL			
	WB		EB
	0		354
			354
		THRU	EB

Bypass Volume 0

**Bypass?**

**Leg 3: Okemos Road**  
 South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

# Okemos Road

at

# EB I-96 Ramps

## Crossroad Diagram:

2010 ADT

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
5968		10566
2950	3018	0
RIGHT	THRU	LEFT

### Leg 4: EB I-96 Ramps

West Leg

WB	2950	
TOTAL	10883	6864
EB	7933	0
		1069
LEFT	THRU	RIGHT

### Leg 2: EB I-96 Ramps

East Leg

RIGHT	0	
THRU	0	0
LEFT	0	385
		385
WB		TOTAL
		385
EB		

### Leg 3: Okemos Road

South Leg

LEFT	THRU	RIGHT
0	3702	385
4087		4087
SB	8174	NB
TOTAL		

# Okemos Road

at

# EB I-96 Ramps

## Roundabout Diagram:

2010 ADT

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: EB I-96 Ramps

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

RT Bypass?

no

Bypass Volume

0

TOTAL

WB

10883

EB

7933

7933

10951

6864

4087

4087

8174

TOTAL

SB

10951

6864

4087

4087

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6864

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4087

8174

TOTAL

SB

# Okemos Road

at

# EB I-96 Ramps

## Crossroad Diagram:

2030 ADT

### Leg 1: Okemos Road

North Leg

		TOTAL	
	SB	19026	NB
	7925		11101
4347	3578	0	
RIGHT	THRU	LEFT	

### Leg 4: EB I-96 Ramps

West Leg

	WB	4347	
TOTAL	12462		6978
	EB	8115	0
		1137	RIGHT
			THRU
			LEFT

### Leg 2: EB I-96 Ramps

East Leg

RIGHT	0		
THRU	0	0	WB
LEFT	0		592
		592	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	0	4123	592
4715		4715	
SB	9430	NB	
	TOTAL		

# Okemos Road

at

# EB I-96 Ramps

## Roundabout Diagram:

2030 ADT

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 2: EB I-96 Ramps

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

RT Bypass?

Bypass Volume

	WB	4347	4347
TOTAL	12462		3578
	EB	8115	8115

RT Bypass?

Bypass Traffic

### Leg 4: EB I-96 Ramps

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

# Okemos Road

at

# EB I-96 Ramps

## Crossroad Diagram:

2007 AM Peak (7:45-8:45)

### Leg 1: Okemos Road

North Leg

	SB	TOTAL	NB
	531	1912	1381
169	362	0	
RIGHT	THRU	LEFT	

### Leg 4: EB I-96 Ramps

West Leg

	WB	169	
TOTAL	1537		986
	EB	1368	0
			382
			RIGHT
			THRU
			LEFT

### Leg 2: EB I-96 Ramps

East Leg

RIGHT	0		
THRU	0	0	WB
LEFT	0		27
		27	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	0	395	27
744		422	
SB	1166	NB	
	TOTAL		

# Okemos Road

at

# EB I-96 Ramps

## Roundabout Diagram:

2007 AM Peak (7:45-8:45)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

TOTAL

WB

169

169

362

986

1408

1408

1408

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1408

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1408

### Leg 4: EB I-96 Ramps

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: EB I-96 Ramps

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

Bypass Traffic

0

Bypass Volume

0

Bypass?

no

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0



# Okemos Road

at

# EB I-96 Ramps

## Crossroad Diagram:

2010 AM Peak (7:45-8:45)

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
559		1392
182	377	0
RIGHT	THRU	LEFT

### Leg 4: EB I-96 Ramps

West Leg

WB		
182		
1555		989
EB	1373	0
		384
TOTAL	LEFT	THRU
		RIGHT

### Leg 2: EB I-96 Ramps

East Leg

RIGHT		
0		
THRU	0	0
LEFT	0	29
		29
TOTAL	WB	EB

### Leg 3: Okemos Road

South Leg

LEFT	THRU	RIGHT
0	403	29
761		432
SB	1193	NB
TOTAL		

# Okemos Road

at

# EB I-96 Ramps

## Roundabout Diagram:

2010 AM Peak (7:45-8:45)

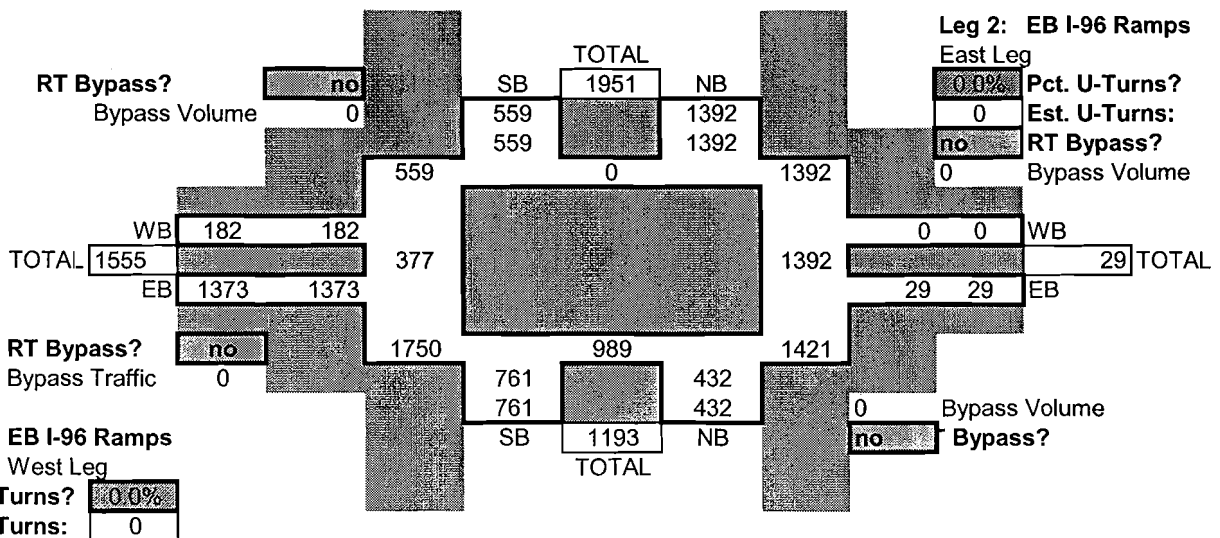
### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### RT Bypass?

Bypass Volume



### Leg 2: EB I-96 Ramps

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

### Leg 4: EB I-96 Ramps

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

## Okemos Road

at

## EB I-96 Ramps

### Crossroad Diagram:

2030 AM Peak (7:45-8:45)

#### Leg 1: Okemos Road

North Leg

TOTAL			
SB		NB	
	745		1461
270	475	0	
RIGHT	THRU	LEFT	

#### Leg 4: EB I-96 Ramps

West Leg

TOTAL			
WB		EB	
	270		1405
1675		0	400
LEFT	THRU	RIGHT	

#### Leg 2: EB I-96 Ramps

East Leg

TOTAL			
WB		EB	
	0		42
0	0	0	42
RIGHT	THRU	LEFT	TOTAL

#### Leg 3: Okemos Road

South Leg

TOTAL			
SB		NB	
	875		498
0	456	42	
LEFT	THRU	RIGHT	

## Okemos Road

at

## EB I-96 Ramps

### Roundabout Diagram:

2030 AM Peak (7:45-8:45)

#### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

#### Leg 2: EB I-96 Ramps

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

#### RT Bypass?

Bypass Volume

TOTAL			
WB		EB	
	270		1405
1675		0	400
LEFT	THRU	RIGHT	

#### RT Bypass?

Bypass Traffic

#### Leg 4: EB I-96 Ramps

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

#### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

# Okemos Road

at

# EB I-96 Ramps

## Crossroad Diagram:

2007 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

	SB	TOTAL	NB
	725	2284	1559
	334	391	0
	RIGHT	THRU	LEFT

### Leg 4: EB I-96 Ramps

West Leg

	WB	334	
TOTAL	1246		810
	EB	912	0
			102
			RIGHT

### Leg 2: EB I-96 Ramps

East Leg

RIGHT	0		
THRU	0	0	WB
LEFT	0		73
		73	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	0	749	73
	493		822
SB	1315		NB
	TOTAL		

# Okemos Road

at

# EB I-96 Ramps

## Roundabout Diagram:

2007 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 2: EB I-96 Ramps

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

### RT Bypass?

Bypass Volume

	WB	334	334
TOTAL	1246		391
	EB	912	912

### RT Bypass?

Bypass Traffic

### Leg 4: EB I-96 Ramps

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

# Okemos Road

at

# EB I-96 Ramps

Crossroad Diagram:  
2010 PM Peak (5:00-6:00)

Leg 1: Okemos Road  
North Leg

TOTAL		
SB		NB
763		1576
360	403	0
RIGHT	THRU	LEFT

Leg 4: EB I-96 Ramps  
West Leg

TOTAL		
WB		EB
1275	813	915
	0	102
LEFT	THRU	RIGHT

Leg 2: EB I-96 Ramps  
East Leg

RIGHT	THRU	LEFT	TOTAL	
0	0	0	WB	EB
			78	

Leg 3: Okemos Road  
South Leg

LEFT	THRU	RIGHT
0	763	78
505	841	
SB	NB	
1346		
TOTAL		

# Okemos Road

at

# EB I-96 Ramps

Roundabout Diagram:  
2010 PM Peak (5:00-6:00)

Leg 1: Okemos Road  
North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

RT Bypass?

Bypass Volume 0

WB	EB
360	915
1275	915

RT Bypass?

Bypass Traffic 0

Leg 4: EB I-96 Ramps  
West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

Leg 2: EB I-96 Ramps  
East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

WB	EB
0	78
0	78

Bypass Volume 0  
Bypass?

Leg 3: Okemos Road  
South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

## Okemos Road

at

## EB I-96 Ramps

Crossroad Diagram:  
2030 PM Peak (5:00-6:00)

Leg 1: Okemos Road  
North Leg

TOTAL		
SB		NB
1011		1688
532	479	0
RIGHT	THRU	LEFT

Leg 4: EB I-96 Ramps  
West Leg

WB		
532		
1468		833
EB	936	0
		103
TOTAL	LEFT	THRU
		RIGHT

Leg 2: EB I-96 Ramps  
East Leg

RIGHT			
0			
THRU	0	0	WB
LEFT	0		116
		116	EB
TOTAL			

Leg 3: Okemos Road  
South Leg

LEFT	THRU	RIGHT
0	855	116
582		971
SB	1553	NB
TOTAL		

## Okemos Road

at

## EB I-96 Ramps

Roundabout Diagram:  
2030 PM Peak (5:00-6:00)

Leg 1: Okemos Road  
North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

Leg 2: EB I-96 Ramps  
East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

RT Bypass?

Bypass Volume

WB		
532		532
1468		479
EB	936	936
TOTAL	LEFT	THRU
		RIGHT

RT Bypass?

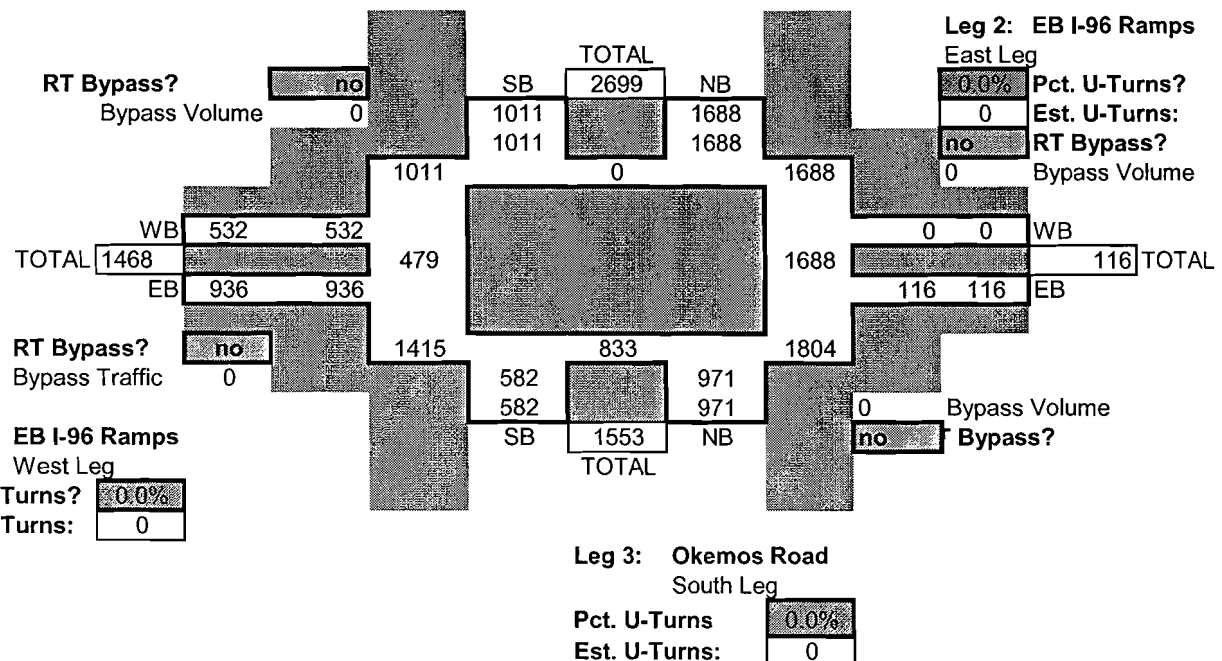
Bypass Traffic

Leg 4: EB I-96 Ramps  
West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

Leg 3: Okemos Road  
South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0



# Okemos Road

at

# WB I-96 Ramps

## Crossroad Diagram:

2007 ADT

### Leg 1: Okemos Road

North Leg

TOTAL			
	SB		NB
	12167		12167
6848	5319	0	
RIGHT	THRU	LEFT	

### Leg 4: WB I-96 Ramps

West Leg

	WB	6848	
TOTAL	6848		0
	EB	0	0
			0
			RIGHT

### Leg 2: WB I-96 Ramps

East Leg

RIGHT	2740		
THRU	0	3094	WB
LEFT	354		4152
		1058	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	0	9427	1058
5673		10485	
SB	16158	NB	
	TOTAL		

# Okemos Road

at

# WB I-96 Ramps

## Roundabout Diagram:

2007 ADT

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

	WB	6848	6848
TOTAL	6848		5673
	EB	0	0

RT Bypass?

no

Bypass Traffic

0

### Leg 4: WB I-96 Ramps

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: WB I-96 Ramps

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

no

RT Bypass?

no

Bypass Volume

0

	WB	3094	3094
TOTAL	4152		1058
	EB	1058	1058

Bypass Volume

0

Bypass?

no

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0

# Okemos Road

at

# WB I-96 Ramps

## Crossroad Diagram:

2010 ADT

### Leg 1: Okemos Road

North Leg

	SB	TOTAL	NB
	12447	24894	12447
6864	5583	0	
RIGHT	THRU	LEFT	

### Leg 4: WB I-96 Ramps

West Leg

	WB	6864	
TOTAL	6864		0
	EB	0	0
			0
			RIGHT

### Leg 2: WB I-96 Ramps

East Leg

RIGHT	2950		
THRU	0	3335	WB
LEFT	385		4404
		1069	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	0	9497	1069
5968		10566	
SB	16534	NB	
	TOTAL		

# Okemos Road

at

# WB I-96 Ramps

## Roundabout Diagram:

2010 ADT

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### RT Bypass?

Bypass Volume 0

	WB	6864	6864
TOTAL	6864		5968
	EB	0	0

### RT Bypass?

Bypass Traffic 0

### Leg 4: WB I-96 Ramps

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 2: WB I-96 Ramps

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

	WB	3335	3335
TOTAL	4404		1069
	EB	1069	

Bypass Volume 0

Bypass?

### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

**Okemos Road**  
**Crossroad Diagram:**  
 2030 ADT

**at** **WB I-96 Ramps**

**Leg 1: Okemos Road**  
 North Leg

TOTAL		
SB		NB
14310		14313
6977	7333	0
RIGHT	THRU	LEFT

**Leg 4: WB I-96 Ramps**  
 West Leg

TOTAL		
WB		EB
6977		0
0		0
LEFT	THRU	RIGHT

**Leg 2: WB I-96 Ramps**  
 East Leg

TOTAL		
RIGHT		LEFT
4348		592
0	4940	6076
THRU	WB	EB

**Leg 3: Okemos Road**  
 South Leg

TOTAL		
LEFT		RIGHT
0		1136
7925		11101
SB	19026	NB

**Okemos Road**  
**Roundabout Diagram:**  
 2030 ADT

**at** **WB I-96 Ramps**

**Leg 1: Okemos Road**  
 North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

**Leg 2: WB I-96 Ramps**  
 East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

**RT Bypass?**  
 Bypass Volume

TOTAL		
WB		EB
6977		0
6977		0
LEFT	THRU	RIGHT

**RT Bypass?**  
 Bypass Traffic

**Leg 4: WB I-96 Ramps**  
 West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

**Leg 3: Okemos Road**  
 South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0



**at WB I-96 Ramps**

### Crossroad Diagram: 2007 AM Peak (7:45-8:45)

**Leg 1: Okemos Road**

North Leg

		TOTAL	
	SB	2816	NB
	1138		1678
655	483	0	
RIGHT	THRU	LEFT	

### Leg 4: WB I-96 Ramps

## West Leg

	WB	655		
TOTAL	655		0	LEFT
	EB	0	0	THRU
			0	RIGHT

### Leg 2: WB I-96 Ramps

### East Leg

RIGHT	349			
THRU	0	397	WB	
LEFT	48			449 TOTAL
		52	EB	

### Leg 3: Okemos Road

### South Leg

	LEFT	THRU	RIGHT
	0	1329	52
531		1381	
SB	1912	NB	
	TOTAL		

**at WB I-96 Ramps**

**Roundabout Diagram:**  
**2007 AM Peak (7:45-8:45)**

**Leg 1: Okemos Road**

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 2: WB I-96 Ramps

East Leg

0.0%	Pct. U-Turns?
0	Est. U-Turns:
no	RT Bypass?
0	Bypass Volume

Leg 1: SB I-96 Ramps						Leg 2: WB I-96 Ramps						
RT Bypass?			TOTAL						East Leg			
Bypass Volume			SB		NB				Pct. U-Turns?			
0	no		1138	2816	1678				0.0%	0	Est. U-Turns:	
			1138	48	1678				no	0	RT Bypass?	
		1186			1726						Bypass Volume	
WB	655	655								397	397	WB
TOTAL	655	531								1329	449	TOTAL
EB	0	0								52	52	EB
		531		0	1381							
RT Bypass?	no		531		1381							
Bypass Traffic	0		531		1381					0		Bypass Volume
			531		1381					no		Bypass?
			SB	1912	NB							
				TOTAL								
WB I-96 Ramps												
West Leg												
Turns?	0.0%											
Turns:	0											

### Leg 3: Okemos Road

### South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

## Okemos Road

at

## WB I-96 Ramps

### Crossroad Diagram:

2010 AM Peak (7:45-8:45)

#### Leg 1: Okemos Road

North Leg

TOTAL			
	SB		NB
	1164		1716
657	507	0	
RIGHT	THRU	LEFT	

#### Leg 4: WB I-96 Ramps

West Leg

	WB	657	
TOTAL	657		0
	EB	0	0
			0
			RIGHT

#### Leg 2: WB I-96 Ramps

East Leg

RIGHT	376		
THRU	0	428	WB
LEFT	52		480
		52	EB
			TOTAL

#### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	0	1340	52
559		1392	
SB	1951	NB	
	TOTAL		

## Okemos Road

at

## WB I-96 Ramps

### Roundabout Diagram:

2010 AM Peak (7:45-8:45)

#### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

#### RT Bypass?

Bypass Volume

	SB	TOTAL	NB
	1164	2880	1716
	1164		1716
1216		52	1768
559			1340
559		0	1392
559		1392	
SB	1951	NB	
	TOTAL		

#### Leg 2: WB I-96 Ramps

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

TOTAL

WB

657

657

559

1340

428

428

WB

480

TOTAL

EB

0

0

559

1392

1392

0

Bypass Volume

no

Bypass?

#### RT Bypass?

Bypass Traffic

no

0

#### Leg 4: WB I-96 Ramps

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

#### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

# Okemos Road

at

# WB I-96 Ramps

## Crossroad Diagram:

2030 AM Peak (7:45-8:45)

### Leg 1: Okemos Road

North Leg

	SB	TOTAL	NB
	1338	3303	1965
671	667	0	
RIGHT	THRU	LEFT	

### Leg 4: WB I-96 Ramps

West Leg

	WB	671		LEFT
TOTAL	671		0	
	EB	0	0	THRU
			0	RIGHT

### Leg 2: WB I-96 Ramps

East Leg

RIGHT	555			
THRU	0	633	WB	
LEFT	78		684	TOTAL
		51	EB	

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	0	1410	51
745		1461	
SB	2206	NB	
	TOTAL		

# Okemos Road

at

# WB I-96 Ramps

## Roundabout Diagram:

2030 AM Peak (7:45-8:45)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: WB I-96 Ramps

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

RT Bypass?

no

Bypass Volume

0

	WB	671	671	
TOTAL	671		745	
	EB	0	0	

RT Bypass?

no

Bypass Traffic

0

### Leg 4: WB I-96 Ramps

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0

# Okemos Road

at

# WB I-96 Ramps

## Crossroad Diagram:

2007 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
1681	3181	1500
982	699	0
RIGHT	THRU	LEFT

### Leg 4: WB I-96 Ramps

West Leg

TOTAL	WB	982	0	LEFT
EB	0	0	0	THRU
			0	RIGHT

### Leg 2: WB I-96 Ramps

East Leg

RIGHT	235			
THRU	0	261	WB	
LEFT	26		555	TOTAL
		294	EB	

### Leg 3: Okemos Road

South Leg

LEFT	THRU	RIGHT
0	1265	294
725	1559	
SB	2284	NB
TOTAL		

# Okemos Road

at

# WB I-96 Ramps

## Roundabout Diagram:

2007 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: WB I-96 Ramps

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

RT Bypass?

no

Bypass Volume

0

TOTAL	WB	982	982	725
EB	0	0	0	0

RT Bypass?

no

Bypass Traffic

0

### Leg 4: WB I-96 Ramps

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0

# Okemos Road

at

# WB I-96 Ramps

## Crossroad Diagram:

2010 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
1720		1535
985	735	0
RIGHT	THRU	LEFT

### Leg 4: WB I-96 Ramps

West Leg

TOTAL		
WB		EB
985		0
985	0	0
LEFT	THRU	RIGHT

### Leg 2: WB I-96 Ramps

East Leg

TOTAL		
RIGHT		LEFT
254		28
0	282	577
28		295
THRU	WB	EB

### Leg 3: Okemos Road

South Leg

TOTAL		
LEFT	THRU	RIGHT
0	1281	295
763	1576	
SB	2339	NB

# Okemos Road

at

# WB I-96 Ramps

## Roundabout Diagram:

2010 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

TOTAL		
WB		EB
985		0
985	0	0
LEFT	THRU	RIGHT

RT Bypass?

no

Bypass Traffic

0

### Leg 4: WB I-96 Ramps

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: WB I-96 Ramps

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

TOTAL		
RIGHT		LEFT
254		28
0	282	577
28		295
THRU	WB	EB

Bypass Volume

0

Bypass?

no

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0

# Okemos Road

at

# WB I-96 Ramps

## Crossroad Diagram:

2030 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

	SB	TOTAL	NB
	1977	3740	1763
1007	970	0	
RIGHT	THRU	LEFT	

### Leg 4: WB I-96 Ramps

West Leg

	WB	1007		LEFT
TOTAL	1007		0	
	EB	0	0	THRU
			0	RIGHT

### Leg 2: WB I-96 Ramps

East Leg

RIGHT	376		
THRU	0	417	WB
LEFT	41		718
		301	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	0	1387	301
1011		1688	
SB	2699	NB	
	TOTAL		

# Okemos Road

at

# WB I-96 Ramps

## Roundabout Diagram:

2030 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

	WB	1007	1007
TOTAL	1007		1011
	EB	0	0

RT Bypass?

no

Bypass Traffic

0

### Leg 4: WB I-96 Ramps

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: WB I-96 Ramps

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

	WB	417	417
TOTAL	718		1387
	EB	301	301

1688

1688

0

Bypass Volume

no

Bypass?

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0

**Okemos Road**  
**Crossroad Diagram:**  
 2007 ADT

**at** **Woodlake - University Park**

**Leg 1: Okemos Road**  
 North Leg

TOTAL		
SB		NB
12400		11751
552	11479	369
RIGHT	THRU	LEFT

**Leg 4: Woodlake - University Park**  
 West Leg

WB	1537	
TOTAL	2989	344
LEFT		
EB	1452	63
THRU		
		1045
		RIGHT

**Leg 2: Woodlake - University Park**  
 East Leg

RIGHT	472	
THRU	26	807
LEFT	309	
		1983
	1176	EB
		TOTAL

**Leg 3: Okemos Road**  
 South Leg

LEFT	THRU	RIGHT
959	10935	744
12833		12638
SB	25471	NB
TOTAL		

**Okemos Road**  
**Roundabout Diagram:**  
 2007 ADT

**at** **Woodlake - University Park**

**Leg 1: Okemos Road**  
 North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

**Leg 2: Woodlake - University Park**  
 East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

**RT Bypass?**  
 Bypass Volume

WB	1537	1537
TOTAL	2989	12157
EB	1452	1452

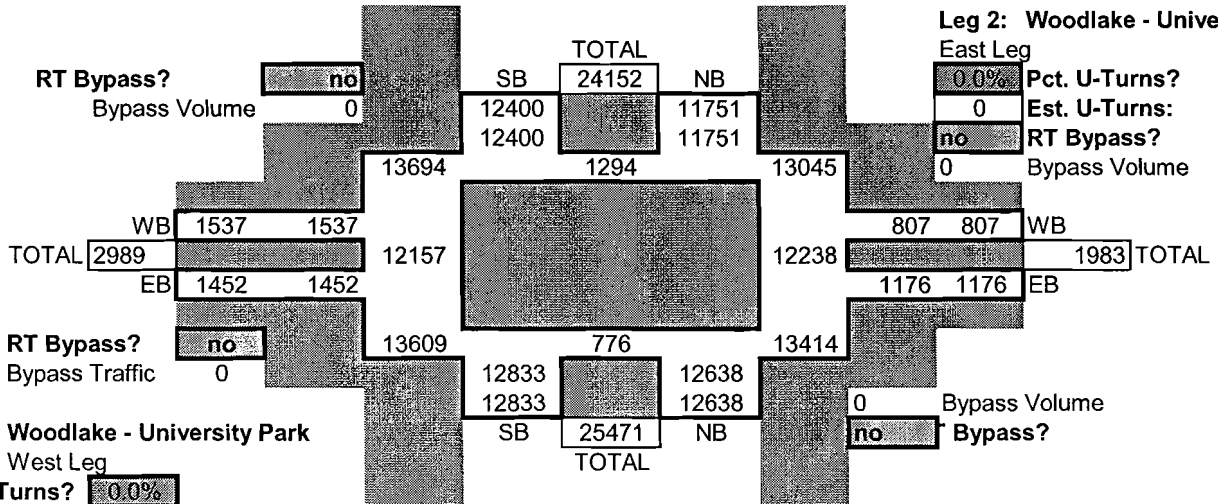
**RT Bypass?**  
 Bypass Traffic

**Leg 4: Woodlake - University Park**  
 West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

**Leg 3: Okemos Road**  
 South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0



at **Woodlake - University Park**

Leg 1: Okemos Road			
North Leg			
		TOTAL	
		SB	NB
		12681	
651		11646	12007
RIGHT	THRU	LEFT	

**Leg 4: Woodlake - University Park**

West Leg

	WB	1758		
TOTAL	3419		407	LEFT
	EB	1662	73	THRU
			1181	RIGHT

**Leg 2: Woodlake - University Park**  
East Leg

RIGHT	489			
THRU	30	822	WB	
LEFT	304		2020	TOTAL
		1198	EB	

<b>Leg 3: Okemos Road</b>			
South Leg			
	LEFT	THRU	RIGHT
	1078	1111	740
13131		12929	
SB	26059	NB	
TOTAL			

at **Woodlake - University Park**

<b>Leg 1: Okemos Road</b>	
North Leg	
<b>Pct. U-Turns?</b>	0.0%
<b>Est. U-Turns:</b>	0

**Leg 1: Woodlake - University Park**

Direction	RT Bypass?	Bypass Volume	Volume
SB	no	0	12681
NB	no	0	12007
TOTAL			24688

**Leg 2: Woodlake - University Park**

Direction	RT Bypass?	Bypass Volume	Volume
WB	no	0	1758
EB	no	0	1662
TOTAL			3419

**Leg 3: Woodlake - University Park**

Direction	RT Bypass?	Bypass Volume	Volume
SB	no	0	13131
NB	no	0	12929
TOTAL			26059

**Leg 4: Woodlake - University Park**

Direction	RT Bypass?	Bypass Volume	Volume
WB	no	0	822
EB	no	0	1198
TOTAL			2020

**Intersection Totals**

Direction	Volume
SB	12681
NB	12007
WB	1758
EB	1662
TOTAL	24688

<b>Leg 3: Okemos Road</b>	
South Leg	
<b>Pct. U-Turns</b>	0.0%
<b>Est. U-Turns:</b>	0



# Okemos Road

at

# Woodlake - University Park

## Crossroad Diagram:

2030 ADT

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
14551		13741
1343	12742	466
RIGHT	THRU	LEFT

### Leg 4: Woodlake - University Park

West Leg

TOTAL		
WB		EB
6286		3057
867	141	2049
LEFT	THRU	RIGHT

### Leg 2: Woodlake - University Park

East Leg

RIGHT	THRU	LEFT	TOTAL	
578	54	292	1345	EB
925			2270	WB

### Leg 3: Okemos Road

South Leg

LEFT	THRU	RIGHT
1832	12295	737
15083		14864
SB		NB
29947		
TOTAL		

# Okemos Road

at

# Woodlake - University Park

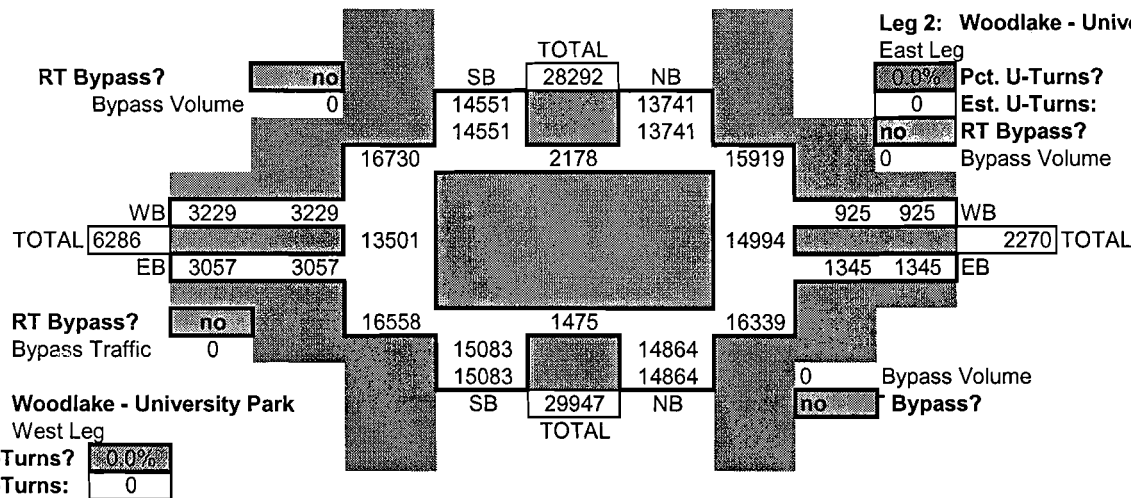
## Roundabout Diagram:

2030 ADT

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0



### Leg 3: Okemos Road

South Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

# Okemos Road

at

# Woodlake - University Park

## Crossroad Diagram:

2007 AM Peak (7:45-8:45)

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
1213		1102
81	1096	36
RIGHT	THRU	LEFT

### Leg 4: Woodlake - University Park

West Leg

WB	345		
TOTAL	379		1
EB		35	1
			34
			RIGHT

### Leg 2: Woodlake - University Park

East Leg

RIGHT	47		
THRU	1	52	WB
LEFT	4		238
		186	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

LEFT	THRU	RIGHT
262	1055	150
1134		1467
SB	2600	NB
TOTAL		

# Okemos Road

at

# Woodlake - University Park

## Roundabout Diagram:

2007 AM Peak (7:45-8:45)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### RT Bypass?

Bypass Volume 0

WB	345	345
TOTAL	379	
EB	35	35

### RT Bypass?

Bypass Traffic 0

### Leg 4: Woodlake - University Park

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 2: Woodlake - University Park

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

WB	52	52
TOTAL	238	
EB	186	186

Bypass Volume	0
Bypass?	no

### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

# Okemos Road

at

# Woodlake - University Park

Crossroad Diagram:  
2010 AM Peak (7:45-8:45)

Leg 1: Okemos Road  
North Leg

TOTAL		
SB		NB
1240		1111
98	1104	39
RIGHT	THRU	LEFT

Leg 4: Woodlake - University Park  
West Leg

TOTAL		
WB		EB
389		40
1	1	38
LEFT	THRU	RIGHT

Leg 2: Woodlake - University Park  
East Leg

TOTAL		
WB		EB
53		187
1	4	240
RIGHT	THRU	LEFT

Leg 3: Okemos Road  
South Leg

TOTAL		
LEFT	THRU	RIGHT
290	1063	148
1146	1500	
SB		NB
2647		

# Okemos Road

at

# Woodlake - University Park

Roundabout Diagram:  
2010 AM Peak (7:45-8:45)

Leg 1: Okemos Road  
North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

RT Bypass?

Bypass Volume 0

TOTAL		
WB		EB
389	389	40
1	1	38
LEFT	THRU	RIGHT

RT Bypass?

Bypass Traffic 0

Leg 4: Woodlake - University Park  
West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

Leg 2: Woodlake - University Park  
East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

TOTAL		
WB		EB
53	53	187
1	4	240
RIGHT	THRU	LEFT

RT Bypass?

Bypass Volume 0

Bypass?

Leg 3: Okemos Road  
South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

## Okemos Road

at

## Woodlake - University Park

### Crossroad Diagram:

2030 AM Peak (7:45-8:45)

#### Leg 1: Okemos Road

North Leg

TOTAL			
SB		NB	
	1423		1187
213	1158	52	
RIGHT	THRU	LEFT	

#### Leg 4: Woodlake - University Park

West Leg

TOTAL			
WB		EB	
	667		73
740		2	70
LEFT	THRU	RIGHT	

#### Leg 2: Woodlake - University Park

East Leg

TOTAL			
WB		EB	
	60		196
54		255	
RIGHT	THRU	LEFT	EB

#### Leg 3: Okemos Road

South Leg

TOTAL			
SB		NB	
	1231		1725
452	1131	142	
LEFT	THRU	RIGHT	

## Okemos Road

at

## Woodlake - University Park

### Roundabout Diagram:

2030 AM Peak (7:45-8:45)

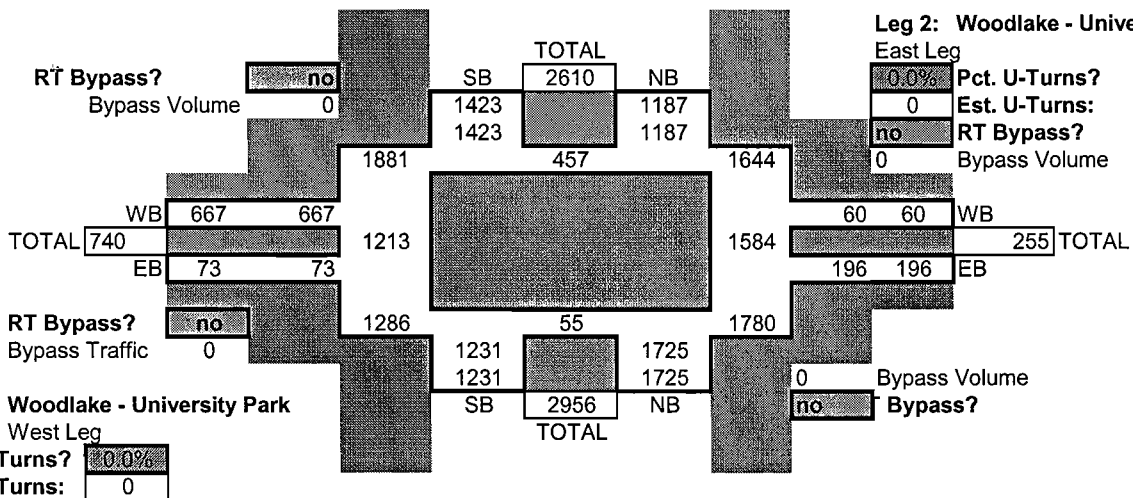
#### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

RT Bypass?

Bypass Volume



#### Leg 2: Woodlake - University Park

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

#### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

#### Leg 4: Woodlake - University Park

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

# Okemos Road

at

# Woodlake - University Park

Crossroad Diagram:  
2007 PM Peak (4:45-5:45)

Leg 1: Okemos Road  
North Leg

TOTAL		
SB		NB
1525		1256
64	1441	21
RIGHT	THRU	LEFT

Leg 4: Woodlake - University Park  
West Leg

TOTAL		
WB		EB
147		203
7	195	1
LEFT	THRU	RIGHT

Leg 2: Woodlake - University Park  
East Leg

TOTAL		
WB		EB
62		130
1	192	27
THRU	LEFT	RIGHT

Leg 3: Okemos Road  
South Leg

TOTAL		
SB		NB
1663		1407
82	1216	108
LEFT	THRU	RIGHT

# Okemos Road

at

# Woodlake - University Park

Roundabout Diagram:  
2007 PM Peak (4:45-5:45)

Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

RT Bypass?

Bypass Volume

WB	EB
147	203

RT Bypass?

Bypass Traffic

Leg 4: Woodlake - University Park  
West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

Leg 2: Woodlake - University Park  
East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

WB	EB
62	130

Bypass Volume

Bypass?

Leg 3: Okemos Road  
South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

# Okemos Road

at

# Woodlake - University Park

## Crossroad Diagram:

2010 PM Peak (4:45-5:45)

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
1560	2844	1285
77	1459	23
RIGHT	THRU	LEFT

### Leg 4: Woodlake - University Park

West Leg

WB		
169		
401	8	LEFT
EB	232	1 THRU
	222	RIGHT

### Leg 2: Woodlake - University Park

East Leg

RIGHT		
36		
THRU	1	63 WB
LEFT	26	196 TOTAL
	133	EB

### Leg 3: Okemos Road

South Leg

LEFT	THRU	RIGHT
90	1241	108
1708	1439	
SB		NB
3147		
TOTAL		

# Okemos Road

at

# Woodlake - University Park

## Roundabout Diagram:

2010 PM Peak (4:45-5:45)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

WB		
169	169	
401	1508	
EB		
232	232	

RT Bypass?

no

Bypass Traffic

0

### Leg 4: Woodlake - University Park

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: Woodlake - University Park

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

WB		
63	63	
1339	196	TOTAL
EB		
133	133	

Bypass Volume

0

Bypass?

no

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0

# Okemos Road

at

# Woodlake - University Park

## Crossroad Diagram:

2030 PM Peak (4:45-5:45)

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
1790		1481
178	1576	36
RIGHT	THRU	LEFT

### Leg 4: Woodlake - University Park

West Leg

WB	315	
TOTAL	741	24
EB	427	4
		399
LEFT	THRU	RIGHT

### Leg 2: Woodlake - University Park

East Leg

RIGHT	48	
THRU	2	71
LEFT	21	
		150
		221
		EB
TOTAL		

### Leg 3: Okemos Road

South Leg

LEFT	THRU	RIGHT
134	1410	111
1996		1655
SB	3651	NB
TOTAL		

# Okemos Road

at

# Woodlake - University Park

## Roundabout Diagram:

2030 PM Peak (4:45-5:45)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: Woodlake - University Park

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

RT Bypass?

no

Bypass Volume

0

TOTAL

741

EB

427

427

2059

1996

1996

SB

3651

TOTAL

63

1655

1655

NB

1718

0

Bypass Volume

no

Bypass?

### Leg 4: Woodlake - University Park

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0

## Jolly Road

**Crossroad Diagram:  
2007 ADT**

### Leg 1: Okemos Road

North Leg

		TOTAL	
	SB	18795	NB
	9585		9210
1365	7243	977	
RIGHT	THRU	LEFT	

### Leg 4: Jolly Road

West Leg

	WB	6310	
TOTAL	12789		1957
	EB	6478	2805
			1717

## Leg 2: Jolly Road

East Leg

RIGHT	565			
THRU	2594	6799	WB	
LEFT	3640		13384	TOTAL
		6585	EB	

### Leg 3: Okemos Road

### South Leg

	LEFT	THRU	RIGHT
	2352	6688	2803
12600		11843	
SB	24442	NB	
	TOTAL		

## Jolly Road

**Roundabout Diagram:**  
2007 ADT

**Leg 1: Okemos Road**

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

## Leg 2: Jolly Road

### East Leg

0.0%	Pct. U-Turns?
0	Est. U-Turns:
no	RT Bypass?
0	Bypass Volume

RT Bypass?			TOTAL			TOTAL			Pct. U-Turns?		
Bypass Volume	0		SB	18795	NB		0.0%				Est. U-Turns:
			9585		9210		0				RT Bypass?
			9585		9210		no				Bypass Volume
			18170	8586	17796		0				
WB	6310	6310					6799	6799	WB		
TOTAL	12789	11860					10996	13384	TOTAL		
EB	6478	6478					6585	6585	EB		
RT Bypass?	no		18338	5739	17581						
Bypass Traffic	0										
			12600		11843						
			12600		11843		0			Bypass Volume	
Jolly Road			SB	24442	NB		no			Bypass?	
West Leg			TOTAL								
Turns?	0.0%										
Turns:	0										

### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0



**Okemos Road**  
**Crossroad Diagram:**  
 2010 ADT

**at Jolly Road**

**Leg 1: Okemos Road**  
 North Leg

TOTAL		
SB		NB
9839		9458
1447	7378	1015
RIGHT	THRU	LEFT

**Leg 4: Jolly Road**  
 West Leg

WB	6657	
TOTAL	13490	2069
LEFT		
EB	6833	2976
THRU		
		1787
RIGHT		

**Leg 2: Jolly Road**  
 East Leg

RIGHT	588	
THRU	2761	7072
LEFT	3723	
		13923
	6851	EB
		TOTAL

**Leg 3: Okemos Road**  
 South Leg

LEFT	THRU	RIGHT
2450	6801	2860
12889		12111
SB	24999	NB
TOTAL		

**Okemos Road**

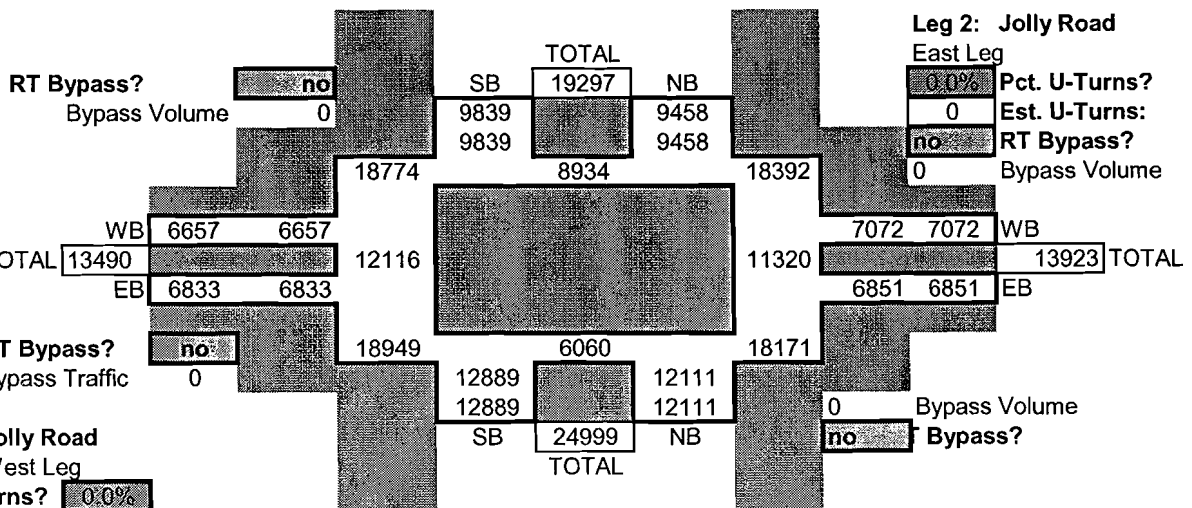
**at**

**Jolly Road**

**Roundabout Diagram:**  
 2010 ADT

**Leg 1: Okemos Road**  
 North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0



**Leg 3: Okemos Road**  
 South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

**Okemos Road**  
**Crossroad Diagram:**  
 2030 ADT

**at Jolly Road**

**Leg 1: Okemos Road**  
 North Leg

TOTAL		
SB		NB
11541		11110
1997	8283	1260
RIGHT	THRU	LEFT

**Leg 4: Jolly Road**  
 West Leg

WB	8973		
TOTAL	18168		2821
	EB	9195	4123
			2251
			RIGHT
			THRU
			LEFT

**Leg 2: Jolly Road**  
 East Leg

RIGHT	731		
THRU	3883	8890	WB
LEFT	4276		17516
		8626	EB
			TOTAL

**Leg 3: Okemos Road**  
 South Leg

LEFT	THRU	RIGHT
3093	7558	3243
14810		13894
SB	28704	NB
TOTAL		

**Okemos Road**  
**Roundabout Diagram:**  
 2030 ADT

**at Jolly Road**

**Leg 1: Okemos Road**  
 North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

**Leg 2: Jolly Road**  
 East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

RT Bypass?	no
Bypass Volume	0

WB	8973	8973
TOTAL	18168	13819
	EB	9195
		9195

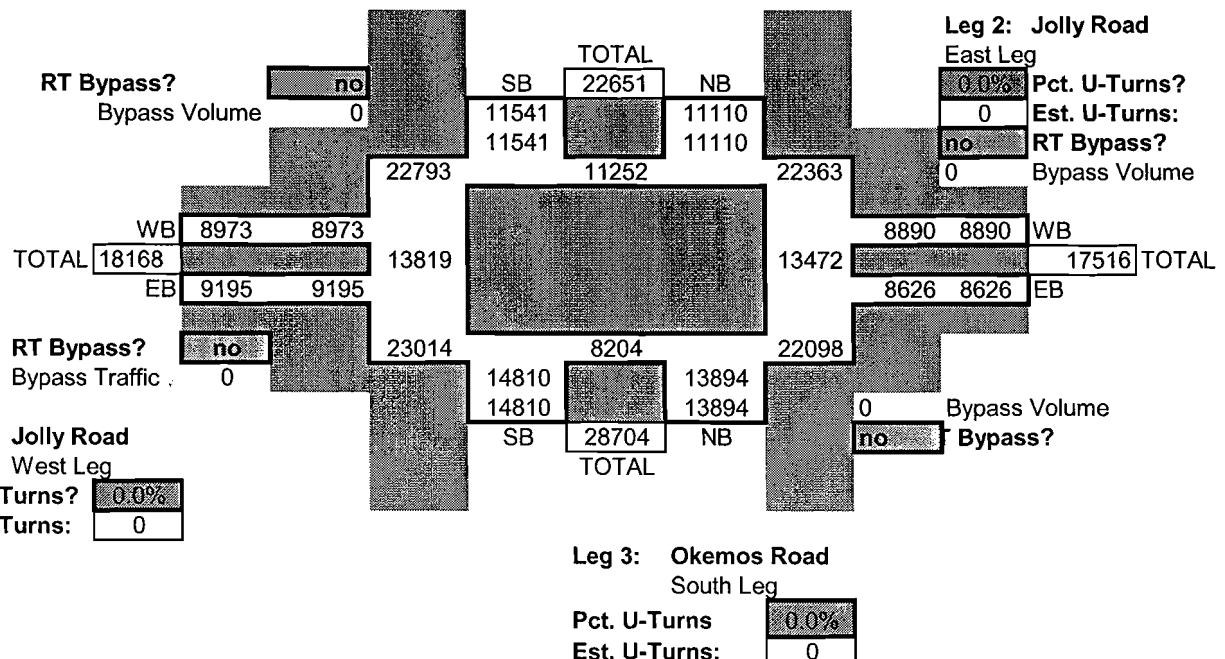
RT Bypass?	no
Bypass Traffic	0

**Leg 4: Jolly Road**  
 West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

**Leg 3: Okemos Road**  
 South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0



# Okemos Road

at

# Jolly Road

## Crossroad Diagram:

2007 AM Peak (7:30-8:30)

### Leg 1: Okemos Road

North Leg

		TOTAL	
	SB	1721	NB
	919		802
133	670	116	
RIGHT	THRU	LEFT	

### Leg 4: Jolly Road

West Leg

	WB	919	
TOTAL	1304		146
	EB	385	165
			74
			RIGHT

### Leg 2: Jolly Road

East Leg

RIGHT	65		
THRU	591	1179	WB
LEFT	524		1635
		455	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	195	591	175
1267		960	
SB	2228	NB	
	TOTAL		

# Okemos Road

at

# Jolly Road

## Roundabout Diagram:

2007 AM Peak (7:30-8:30)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

	WB	919	919
TOTAL	1304		1309
	EB	385	385

RT Bypass?

no

Bypass Traffic

0

### Leg 4: Jolly Road

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: Jolly Road

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

	WB	1179	1179
TOTAL	1635		1635
	EB	455	455

Bypass Volume

0

Bypass?

no

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0

# Okemos Road

at

# Jolly Road

## Crossroad Diagram:

2010 AM Peak (7:30-8:30)

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
944		823
141	683	120
RIGHT	THRU	LEFT

### Leg 4: Jolly Road

West Leg

WB	968	
TOTAL	1374	154
LEFT		
EB	406	175
THRU		
		77
		RIGHT

### Leg 2: Jolly Road

East Leg

RIGHT	67	
THRU	625	1227
LEFT	535	
		1700
	473	EB
		TOTAL

### Leg 3: Okemos Road

South Leg

LEFT	THRU	RIGHT
203	601	178
1294		982
SB	2277	NB
TOTAL		

# Okemos Road

at

# Jolly Road

## Roundabout Diagram:

2010 AM Peak (7:30-8:30)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 2: Jolly Road

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

RT Bypass?

Bypass Volume

WB	968	968
TOTAL	1374	1338
EB	406	406

RT Bypass?

Bypass Traffic

### Leg 4: Jolly Road

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

## Okemos Road

at

## Jolly Road

### Crossroad Diagram:

2030 AM Peak (7:30-8:30)

#### Leg 1: Okemos Road

North Leg

TOTAL			
	SB		NB
	1107		959
	190	769	148
RIGHT	THRU	LEFT	

#### Leg 4: Jolly Road

West Leg

	WB		
	1295		
TOTAL	1842		208
	EB	546	240
			97
		THRU	RIGHT

#### Leg 2: Jolly Road

East Leg

RIGHT			
82			
THRU	851	1542	WB
LEFT	610		2133
		591	EB
			TOTAL

#### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	255	669	203
	1476		1127
	SB	2603	NB
TOTAL			

## Okemos Road

at

## Jolly Road

### Roundabout Diagram:

2030 AM Peak (7:30-8:30)

#### Leg 1: Okemos Road

North Leg

Pct. U-Turns? 0.0%

Est. U-Turns: 0

RT Bypass?

no

Bypass Volume

0

	WB		
	1295	1295	
TOTAL	1842		1526
	EB	546	546

RT Bypass?

no

Bypass Traffic

0

#### Leg 4: Jolly Road

West Leg

Pct. U-Turns? 0.0%

Est. U-Turns: 0

#### Leg 2: Jolly Road

East Leg

Pct. U-Turns? 0.0%

Est. U-Turns: 0

RT Bypass?

no

Bypass Volume

0

	WB		
	1542	1542	
TOTAL	2133		
	EB	591	591

Bypass Volume

0

Bypass?

no

#### Leg 3: Okemos Road

South Leg

Pct. U-Turns 0.0%

Est. U-Turns: 0

# Okemos Road

at

# Jolly Road

## Crossroad Diagram:

2007 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

TOTAL			
	SB		NB
	1109		1082
104	922	82	
RIGHT	THRU	LEFT	

### Leg 4: Jolly Road

West Leg

	WB		
	525		
TOTAL	1264		258
	EB	739	320
			162
		THRU	RIGHT

### Leg 2: Jolly Road

East Leg

RIGHT			
90			
THRU	259	827	WB
LEFT	478		1601
		774	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	162	734	372
1562		1267	
SB	2829	NB	
TOTAL			

# Okemos Road

at

# Jolly Road

## Roundabout Diagram:

2007 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

TOTAL

WB

525

525

1483

EB

739

739

RT Bypass?

no

Bypass Traffic

0

### Leg 4: Jolly Road

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 3: Okemos Road

South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0

### Leg 2: Jolly Road

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

TOTAL

WB

827

827

1601

EB

774

774

1927

Bypass Volume

0

Bypass?

no

# Okemos Road

at

# Jolly Road

## Crossroad Diagram:

2010 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

TOTAL		
SB		NB
1138		1113
110	942	86
RIGHT	THRU	LEFT

### Leg 4: Jolly Road

West Leg

WB	554	
TOTAL	1334	272
EB	780	340
		168
LEFT	THRU	RIGHT

### Leg 2: Jolly Road

East Leg

RIGHT	94	
THRU	276	860
LEFT	491	1667
		807
WB		EB

### Leg 3: Okemos Road

South Leg

LEFT	THRU	RIGHT
168	747	381
1600		1296
SB	2896	NB
TOTAL		

# Okemos Road

at

# Jolly Road

## Roundabout Diagram:

2010 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### RT Bypass?

Bypass Volume

no

0

TOTAL

WB

EB

554

780

554

780

1519

2298

698

1600

1600

2896

NB

TOTAL

1187

1994

0

Bypass Volume

no

Bypass?

### Leg 4: Jolly Road

West Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0

### Leg 2: Jolly Road

East Leg

Pct. U-Turns?	0.0%
Est. U-Turns:	0
RT Bypass?	no
Bypass Volume	0

TOTAL

WB

EB

860

807

860

1667

807

1994

0

Bypass Volume

no

Bypass?

### Leg 3: Okemos Road

South Leg

Pct. U-Turns	0.0%
Est. U-Turns:	0

# Okemos Road

at

# Jolly Road

## Crossroad Diagram:

2030 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

	SB	TOTAL	NB
	1335	2654	1319
153	1073	110	
RIGHT	THRU	LEFT	

### Leg 4: Jolly Road

West Leg

	WB	754	
TOTAL	1803		367
	EB	1049	473
			210
			RIGHT

### Leg 2: Jolly Road

East Leg

RIGHT	118		
THRU	390	1081	WB
LEFT	573		2106
		1025	EB
			TOTAL

### Leg 3: Okemos Road

South Leg

	LEFT	THRU	RIGHT
	211	834	442
1855		1487	
SB	3342	NB	
			TOTAL

# Okemos Road

at

# Jolly Road

## Roundabout Diagram:

2030 PM Peak (5:00-6:00)

### Leg 1: Okemos Road

North Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 2: Jolly Road

East Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

RT Bypass?

no

Bypass Volume

0

RT Bypass?

no

Bypass Volume

0

TOTAL

1803

EB

1049

1049

2805

RT Bypass?

no

Bypass Traffic

0

### Leg 4: Jolly Road

West Leg

Pct. U-Turns?

0.0%

Est. U-Turns:

0

### Leg 3: Okemos Road

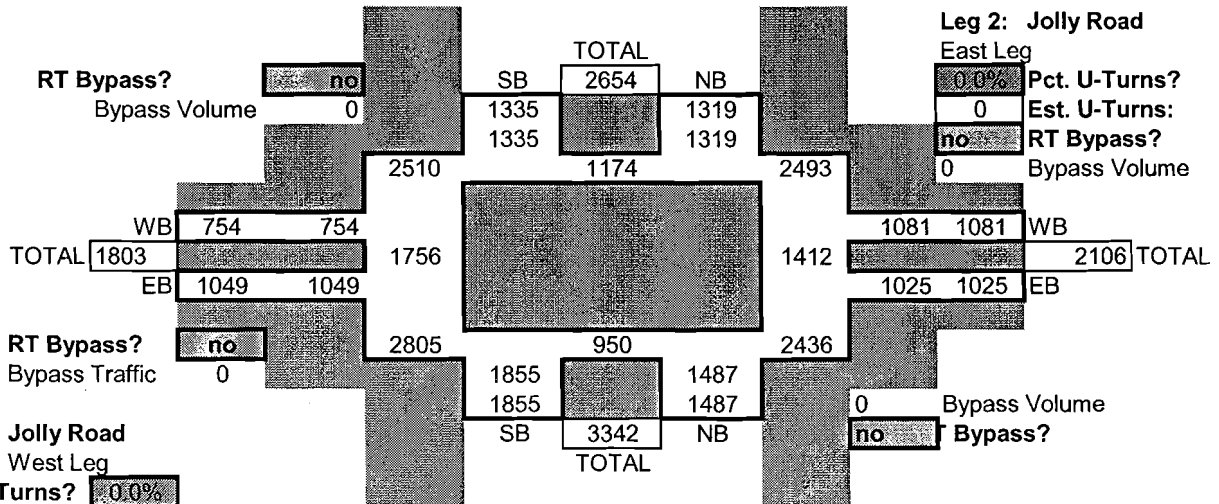
South Leg

Pct. U-Turns

0.0%

Est. U-Turns:

0





Level-Of-Service analysis (per HCM 2000 methodology) results for the two basic freeway segments on I-96, from US-127/I-496 to Okemos Road, and from Okemos Road to Williamston Road:

I-96 from I-496 to Okemos Road: WB controlling:

2007 - LOS D, density 26.6 pc/mi/ln

2010 - LOS D, density 29.3 pc/mi/ln

2030 - LOS E, density 41.1 pc/mi/ln

I-96 from Okemos Road to Williamston Road: EB controlling for 2007 and 2010:

2007 - LOS D, density 28.8 pc/mi/ln

2010 - LOS D, density 30.6 pc/mi/ln

2030 - LOS E, density 41.4 pc/mi/ln

Note: This analysis was done with ADT instead of AADT and directional DHV instead of peak hour proportionality.

Level-Of-Service analysis for concept with auxiliary lanes on I-96 EB and WB between US-127/I-496 and Okemos Road:

I-96 from I-496 to Okemos Road:

2007 - LOS C, density 17.4 pc/mi/ln

2010 - LOS C, density 18.8 pc/mi/ln

2030 - LOS C, density 22.9 pc/mi/ln

Note: A review of the WB Okemos Road Off Ramp ADT volumes provided show that about 25% of the directional EB ADT exits onto this off ramp. The program evaluated 3 thru lanes due to the length of the segment, greater than a mile between interchanges. So, the program may have distributed more volumes to the third lane than it should have although a significant number of vehicles will exit at Okemos.